REMARKS

Claims 1-24 are currently pending in the patent application. The Examiner has rejected all of the claims as failing to comply with the enablement requirement and as indefinite under 35 USC 112; has rejected Claims 1, 4, 9, 12, 17, and 20 under 35 USC 102 as anticipated by Rabbani; has rejected Claims 2, 10, and 18 under 35 USC 103 as unpatentable over Rabbani in view of Isnardi; has rejected Claims 5, 7, 8, 13, 15, 16, 21, 23, and 24 as unpatentable over Rabbani in view of Isnardi with Official notice taken of many features; and, has rejected Claims 3, 6, 11, 14, 19, and 22 as unpatentable over Rabbani, again with Official Notice being taken of several features.

With regard to the rejections of the claims as indefinite, Applicants have amended the language of the independent claims to more clearly recite that the quantization is taking place after the predetermined processing. Quantization is the "clean up" process which is performed on image data, such as clipping of residual values after processing, to remove errors which may have been introduced by certain forms of processing. Since quantization can remove information from an image, the

present invention seeks to minimize the amount of embedded information which might be lost as a result of quantization after processing.

The present invention provides a system, method, and program storage device wherein quantization values are determined for a process that is going to be performed on image data. Knowing the predetermined process, and knowing the types of errors that may be introduced by that process, either before or during quantization, the present invention seeks to predict the quantization values (i.e., the thresholds for eliminating information) and alter the image data prior to processing in order to avoid losing desired information (e.g., embedded data). Accordingly, the invention will select certain image areas for embedding data, or otherwise alter the image to avoid the problem. The claims have been amended, where necessary, to more clearly recite the system, method, and program storage device.

The primary reference cited against the claims is the Rabbani patent. Rabbani performs image alteration after quantization to eliminate the deleterious effects of quantization on the already processed and quantized image. Where the present invention predicts the problem of losing

embedded data and adjusts the image data to avoid the loss, the Rabbani patent allows the loss to occur and then seeks to minimize the visual effects of the loss. Clearly a system and method which makes changes after allowing errors to be introduced is not the same as or suggestive of a system and method which predicts errors and performs operations so that the errors are not introduced. Applicants believe that the present claim language, as amended, clearly recites the latter system and method.

It is well established under U. S. Patent Law that, for a reference to anticipate claim language under 35 USC 102, that reference must teach each and every claim feature. Since the Rabbani patent does not teach processor means or steps for determining the quantization value for a predetermined process to be later performed on image data; and does not teach conversion means or steps for altering values of image data so that quantized values will not be changed by errors introduced through the predetermined process, it cannot be maintained that the Rabbani patent anticipates the language of Claims 1, 4, 9, 12, 17 and 20.

It is also to be noted that the Rabbani patent teaches away from the invention as claimed since Rabbani removes additional image data in order to minimize the visual effect

of errors which have been introduced. Rabbani expressly states that "the benefits of recovering a high quality high-resolution image far outweigh any disadvantage of reducing the watermark" (See: Col. 7, lines 64-67). Clearly Rabbani is teaching away from a system and method which seeks to avoid loss of embedded data by altering the image data prior to the processing which would introduce the errors.

Claims 2, 10 and 18 have been rejected as unpatentable over Rabbani in view of Isnardi. The Applicants rely on the arguments set forth above with regard to the Rabbani patent teachings. The Isnardi patent has been cited for teaching dividing an image to insert a watermark into each of the divided regions. Applicants respectfully assert that one would not be motivated by the teachings of Rabbani or of Isnardi to combine the teachings. Since Rabbani alters image data after errors are introduced, and is not particularly concerned with the integrity of the watermarks, it seems unlikely that one reading Rabbani would be motivated to modify it with the Isnardi teachings of adding extra watermarks. Further, even if one were motivated to modify Rabbani with the Isnardi teachings regarding dividing an image and inserting watermarks into each divided region,

one would not arrive at the invention as claimed. A combination of the teachings would result in a Rabbani system wherein divided regions of an image would all have repeated errors introduced by the multiple watermarks and would address those errors, after the embedding and other processing, by altering the processed image data. Such is not the same as or suggestive of the invention as claimed wherein errors are predicted in advance of processing and steps are taken to alter the image data prior to processing to avoid the errors.

With regard to Claims 5, 7, 8, 13, 15, 16, 21, 23, and 24, which have also been rejected as unpatentable over Rabbani and Isnardi, Applicants rely on the arguments presented above with regard to the teachings of Rabbani and Rabbani in combination with Isnardi. Rather than citing any further teachings from Isnardi or Rabbani in rejecting the claim language, the Examiner takes "Official Notice" of many features. Applicants respectfully contest the "Official Notice" designations and respectfully request that the Examiner point to teachings or suggestions in the art. Regarding Claims 5, 13, and 21, the Examiner first "takes Official Notice because using a has function (sic) based on key information is well known in the art" (top of page 6 of

the Office Action. Applicants assume that the Examiner is referring to the use of a "hash function", since the term "hash function" is found in the rejected claims. While hash functions may be known, as evidenced by the citation of Bloomberg, Applicants respectfully assert that there is nothing in the cited art which teaches or suggests a processing means and steps as claimed, comprising hash value calculation means and steps for calculating a hash value based on predetermined key information and image data, for embedding data in conjunction with the claimed determining and altering prior to introduction of errors.

Similarly, with regard to Claim 7, 15, and 23, the Examiner takes Official Notice "because any watermarking technique(s) always requires a way to detect the specific watermark, which is usually performed by reversing the encoding method used." Applicants respectfully disagree. Some watermarking techniques have been carefully developed to be effectively undetectable. Moreover, the problem addressed by the present invention expressly shows that watermarks may be changed by errors introduced during processing. Further, Rabbani itself teaches that watermarks can be compromised based on processing. Clearly the blanket categorization of watermarking with "Official Notice" is not

appropriate and should not be relied upon as a prior art basis for obviousness. Applicants respectfully request that the Examiner find some teaching in the prior art to support the rejection.

With regard to claims 8, 16, and 24, Applicants disagree with the Examiner who "takes Official Notice because it is well known in the art to reverse the process of encoding to detect the presence of a watermark and/or if any alteration has taken place to the image containing the watermark." Applicants rely on the arguments set forth above and again request that the Examiner provide some basis in prior art teachings for supporting the "Official Notice".

With regard to Claims 6, 14, and 22, the Examiner "takes Official Notice because any watermarking technique(s) always requires a way to detect the specific watermark, which is usually performed by reversing the encoding method used." Applicants again rely on the arguments set forth above and again request that the Examiner provide some basis in the prior art teachings for supporting the "Official Notice". Applicants reiterate that the subject application, itself, teaches that errors can be introduced which would compromise embedded data such as watermarks. Clearly, therefore, reversing the process would not be effective,
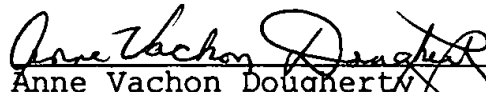
particularly in a Rabbani system wherein errors are introduced and then image data is adjusted to minimize the visual impact of the errors. Clearly reversing an embedding process would not be effective in detecting a watermark that Rabbani "altered" out of image data.

Applicants believe that the Examiner has erred in rejecting the claims under 35 USC 102 and 103. Applicants believe that the Rabbani patent does not teach each and every feature of the claimed invention. Moreover, Applicants believe that the Examiner has not made out a *prima facie* case of obviousness against the claims, since the Examiner has relied on "Official Notice" rather than on teachings or suggestions from the art. Accordingly, Applicants believe that the claims should not be rejected.

Based on the foregoing amendments and remarks, Applicants respectfully request entry of the amendments, reconsideration of the amended claim language in light of the remarks, withdrawal of the rejections, and allowance of the claims.

Respectfully submitted,
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